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ABSTRACT

The speech that upper-middle class mothers used with their young children was compared to that used by working class mothers. Mother-child interaction was recorded in four settings: mealtime, dressing, reading, and playing with toys. Also investigated were mothers' child rearing beliefs and goals. Participants included 33 upper-middle class and 30 working class mother-child dyads. Children were selected to be comparable in level of productive language use. In terms of Roger Brown's stages, all were Stage I speakers. Findings indicated that the working class mothers talked less to their children than did the upper-middle class mothers, and when they talked their speech differed in its functional, discourse, and lexico-syntactic properties. Upper-middle class mothers talked more per unit of time and sustained longer interactions with children. Effects and non-effects of setting support the contention that the press of external factors does not explain observed class differences in the mothers' speech. Differences in beliefs, attitudes, and goals described by mothers were few and without explanatory force. Analyses of the language mothers used in response to interview questions suggested that mothers talk differently to their children because they talk differently to everybody. Concluding remarks speculate on the consequences of class differences in maternal speech. (RH)

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Effects of Social Class and Interactive Setting on Maternal Speech

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Researchers from a variety of disciplines have made the claim that there are social class and cultural differences in the ways mothers talk to their children. Most recently this claim has been voiced in criticism of the research which argues for a role of the environment in language acquisition. More specifically, the target of the criticism has been research which finds effects of maternal speech on child language development and argues from those findings that maternal input helps the child acquire language. The criticism is that the samples in which such effects have been found have primarily been samples of white, Western, educated mothers and their children. Children in other socio-cultural groups experience very different environments, yet all normal children acquire language. Therefore, the argument goes, the supposedly supportive characteristics of mother-child conversation identified in unrepresentative samples cannot be truly important for language development (cf. Heath, 1987; Pinker, 1984).

There is also a large body of research on class differences in maternal speech which has been conducted outside of this psycholinguistic controversy and which has its roots in the search for causes of school failure among lower class children (cf. Bee, et al., 1982; Feagans & Farran, 1982; Farran & Ramey, 1980; Hess & Shipman, 1965). The conclusion of this body of research is similarly that educated, middle class mothers talk to their children differently than mothers in other socio-cultural

groups. However, according to this research, these group differences have consequences for the children. Specifically, middle class children acquire language skills which better prepare them for the demands of formal schooling than the language skills acquired by lower class children.

Thus there seems to be agreement that mother-child conversation in the middle class is not representative of all mother-child interaction, but there is not agreement on the theoretical or practical significance of this state of affairs. The fact that these two bodies of research have often employed different methods and measures in assessing mothers' speech and children's language development creates an obstacle to any effort at reconciling their differing conclusions. What is needed is a coherent investigation of how middle class interaction differs from interaction in other groups, how middle class children's language development differs from language development in other groups, and what the relationship is between any group differences in mother-child conversation and any group differences in children's language development. The present study is the first part of a larger project which was designed to provide such data.

The present study addresses the first question--that of group differences in mother-child conversational interaction. It compares the speech upper middle class mothers and working class mothers addressed to their young children in naturalistic interaction at home. Interaction was recorded in four settings--mealtime, dressing, reading, and toy play. The variable of setting was included in the design of the present study because it has been implicated as an influence on maternal speech in discussions of previously observed social class differences (Snow, 1982).

That is, it has been hypothesized that some of the class differences in maternal speech result from less affluent mothers having less leisure time for play, and thus their interactions with their children are more confined to goal-directed caretaking settings which demand a less conversational, more directive, style. To the extent that this hypothesis is true, the class differences should be least in the caretaking settings where all the mothers are subject to the demands of accomplishing the same goals, and the class differences should be greatest in the least constrained toy play setting. Alternatively, it has also been hypothesized that social class differences in maternal speech are due to more internal, stable characteristics of mothers such as their beliefs and attitudes about verbal interaction with young children and their child rearing goals. To the extent that class differences are due to such internal factors, whatever class differences are observed should be stable across settings. The present study also attempted to directly assess maternal child rearing beliefs and goals through a brief interview conducted with each mother. In addition, these interviews provided a basis for investigating social class differences in the mothers' adult-directed speech.

Method

Subjects

The participants were 33 upper middle class and 30 working class mother-child dyads. Social class was defined by the criteria of education and occupation. Both the mother and father of the upper middle class participants had at least two years of college and, if employed, worked in professional or managerial positions. The mean number of years of

education was 16.18 for the mothers and 16.38 for the fathers in this group. Both the mother and father of the working class participants had no education other than technical training beyond high school and, if employed, worked in unskilled, semiskilled, or service positions. The mean number of years of education was 11.8 for the mothers and 12.4 for the fathers in this group. None of the mothers worked outside the home more than 15 hours per week. All the mothers were white native speakers of English; all the homes were monolingual.

The children were selected to be comparable in terms of their level of productive language use. They all produced at least three different two-word combinations, but no more than 50 percent of their utterances were multiword utterances. In terms of Roger Brown's stages, they were all Stage I speakers. The mean MLU in morphemes was 1.25 for the upper middle class children and 1.28 for the working class children. Age was not a selection criterion, and the children ranged in age from 1;6 to 2;5. The mean ages were 21.0 months for the upper middle class children and 21.6 months for the working class children. There were no significant group differences in child age or MLU (Both t's < 1.0). There were roughly equal numbers of boys and girls and first-borns and later-borns in each social class.

Procedure

After at least one preliminary visit by a researcher, each mother-child dyad was videotaped at home in four conversational settings: mealtime, dressing, book reading, and toy play. The books and toys were provided by the researcher. The taping sessions were scheduled to coincide with the child's usual time for eating breakfast or lunch. The

order in which the settings occurred was left up to the mother who was told to follow her child's usual routine as much as possible. There was one consistent difference in order of the settings between social classes. The upper middle class mothers tended to dress their children before feeding them, whereas the working class mothers tended to feed their children before dressing them. The durations of the interactions were allowed to vary naturally with the exception of a ceiling of 20 minutes for the reading and toy play settings. The mealtime and dressing interactions lasted longer on average for the upper middle class dyads than for the working class dyads; there were no class differences in the durations of the reading and toy play interactions. Other family members were not present during the videotaping. Because these children were too young for preschool programs and because the mothers did not work outside the home, their spending several hours together at home was not a contrived situation except for the occasional exclusion of a preschool or infant sibling who would otherwise have been present.

The videotapes of these interactions were transcribed by trained research assistants following the conventions for the use of the Systematic Analysis of Language Transcripts (SALT) program (Miller & Chapman, 1985). Each transcript was checked against the videotape two times in the course of coding, once by the original transcriber and once by another research assistant. Using both the transcripts and the videotape records, characteristics of each dyad's interactions were quantified using several coding schemes.

The present paper reports data on five characteristics of maternal speech which were measured. The amount of speech was measured as the

total number of utterances produced divided by the duration of the interaction. The lexical properties of speech were indexed by two measures, the total number of word roots produced (uncorrected for differences in the number of utterances or the duration of the interaction) and the type-token ratio based on the first 50 utterances. The syntactic properties of speech were assessed using mean length of utterance (MLU) in morphemes based on all the complete and intelligible utterances produced. These lexico-syntactic measures were generated by SALT. One discourse property of speech assessed was the rate at which mothers provided topic-continuing replies to their children's utterances. Following the definition of topic continuing used by Keenan & Schieffelin (1976) and Hoff-Ginsberg (1987), an utterance was coded as topic-continuing if it included any mention of the topic of the child's prior utterance. Rate was calculated as a percentage of the child's total utterances. That category was one of several in a scheme for coding the topic relations in mother-child conversation. All coding was done by the same research assistant, and interrater reliabilities for the entire coding scheme calculated with the author yielded an agreement rate of 87 percent and a kappa of .80, based on 220 utterances coded.

Lastly, six functionally-defined categories of maternal speech were coded and their frequencies calculated as a percentage of the total number of utterances the mothers produced. These categories were based on a system for coding maternal language function developed by McDonald & Pien (1982) and used previously by Hoff-Ginsberg (1986). Behavior directives included utterances which served the function of directing the child's attention (e.g., "Look.") or behavior (e.g., "Can you put the orange key

in here?" "Put it in here." "It goes in here."). Conversation-eliciting utterances included questions which were judged to be intended to elicit verbal replies and prompts to answer previous such questions. Responses to child speech included answers to questions posed by the child and acknowledgments of declarative utterances by the child. Corrections included corrections of both speech and nonverbal behavior. Acknowledgments of child actions were utterances which did not serve any of the above functions and commented on a nonverbal behavior by the child (e.g., "That's right."). Declaratives were declarative-form utterances which did not serve any of the above functions. All of the coding of the functional properties of maternal speech was done by one research assistant on transcripts which indicated no other coding. Interrater reliability calculated between the coder and the author yielded 82 percent agreement and a kappa of .80 based on 201 coded utterances. Both the topic and function codes were done blind to social class--except as class may have been revealed in the transcripts themselves.

Results

The means for each characteristic of maternal speech and for the total number of utterances on which these measures were based are presented in Table 1.

Insert Table 1 here

Effects of social class and interactive setting on the rate of maternal utterances, maternal MLU, and the rate of topic-continuing replies to the child were analyzed in separate 2 (social class) x 4

(interactive setting) ANOVAs. Effects of social class on the lexical and functional properties of maternal speech were analyzed in separate MANOVAs for each set of dependent variables.

The analysis of variance in the rate of maternal utterances indicated a marginally significant effect of class ($F(1,61) = 3.16$, $p < .08$), a significant effect of setting ($F(3,183) = 28.03$, $p < .001$), and a significant interaction between class and setting $F(3,183) = 3.82$, $p < .01$). The pattern of differences was that upper middle class mothers talked to their children more than working class mothers in every setting but reading, where there was no class difference.

Analysis of maternal MLU indicated no main effect of social class, a significant effect of setting ($F(3,183) = 18.56$, $p < .001$), and a marginally significant interaction between social class and setting ($F(3,183) = 2.34$, $p < .07$). The pattern of differences was that maternal MLU was higher during book reading than in the other settings, which were not different from each other, and in every setting but reading there was a tendency for upper middle class mothers to have higher MLUs than working class mothers.

Analysis of the rate of topic-continuing replies indicated significant main effects of social class ($F(1,61) = 6.01$, $p < .02$) and setting ($F(3,183) = 22.41$, $p < .01$) and no interaction. Upper middle class mothers provided a higher rate of topic-continuing replies to their children than working class mothers in every setting. Both groups of mothers produced their highest rates of topic-continuing replies during book reading and their lowest rates during toy play.

The MANOVA with mothers' type-token ratios and total number of word

roots produced as dependent variables indicated a significant effect of social class, $F(8,54)=3.49$, $p < .01$. Univariate F tests indicated that upper middle class mothers produced more word roots than working class mothers in the contexts of mealtime and dressing (F's (1,61) = 6.34, $p < .01$ and 17.57, $p < .001$), but not during reading or toy play. There were no significant differences in type-token ratio.

The MANOVA on the functional properties of maternal speech also indicated a significant effect of social class, $F(24,38)=2.77$, $p < .01$. Univariate F tests for each dependent measure in each interactive setting indicated the following: upper middle class mothers produced more conversation eliciting utterances than working class mothers during mealtime ($F(1,61) = 6.36$, $p < .02$). The differences in the other settings were in the same direction, but they were not significant. There was a marginally significant tendency for upper middle class mothers to produce more declaratives than working class mothers during mealtime ($F(1,61) = 3.65$, $p < .07$) and dressing ($F(1,61) = 3.37$, $p < .08$), with no difference during reading and toy play. Working class mothers produced significantly more behavior directives and corrections in every setting except reading (F's (1,61) = 20.59, 11.33, 5.62, all p's $< .02$). Upper middle class mothers produced more acknowledgments of their children's actions than working class mothers during dressing ($F(1,61) = 4.73$, $p < .05$) and toy play ($F(1,61) = 14.31$, $p < .001$). There were no class differences in the percent of maternal utterances that were non-conversation eliciting responses to child speech in any setting.

Discussion

Social class differences in child-directed speech

The working class mothers in the present study talked less to their children than the upper middle class mothers, and when they talked their speech differed in its functional, discourse, and lexico-syntactic properties. The difference in the amount of speech is most clearly evidenced in the significant difference in the rate of maternal utterances. However, it is also noteworthy that this difference in rate obtained despite the fact that in the situations where the researchers put no time limit, the duration of the interactions in the upper middle class dyads was also longer. That is, the upper middle class mothers both talked more per unit of time and sustained longer interactions with their children, arguably via their use of language.

The class differences in the functional properties of maternal speech were that a greater proportion of the working class mothers' speech was for the purposes of telling their children what to do and correcting them for what they just did. Less of the working class mothers' speech served the functions of eliciting conversation from their children or acknowledging their children's actions.

The class difference in the discourse relations between maternal and child speech was that working class children less frequently received topic-continuing replies to their utterances. This difference in the children's experiences was a by-product of the class difference in mothers' rates of speech. That is, there was no class difference in the rate of maternal topic-continuing replies when it was calculated as a percentage of mothers' utterances--only when calculated as a percent of

child utterances. This is one case, then, in which differences in the quantity of verbal input resulted in differences in quality. In terms of Grice's metaphor of conversation as a game of catch, the working class mothers tended to drop the ball.

The results also suggest some class differences in the lexico-syntactic properties of maternal speech. Although the class by setting effect on maternal MLU was only marginally significant, the pattern of differences was straightforward: the mean MLU for upper middle class mothers was higher than the mean MLU for working class mothers in every setting but book reading. The results also suggest that upper middle class mothers expose their children to a richer vocabulary than working class mothers. Like the difference in the rate of topic-continuing replies, this difference in vocabulary is not separable from the fact that the upper middle class mothers talked more and sustained interaction longer. That is, the difference in the lexical properties of maternal speech was only in the total number of roots produced during mealtime and dressing--precisely those settings which were of longer duration for the upper middle class dyads--and there was no class difference in type-token ratio in any setting. However, the longer durations need not have produced differences in the number of word roots. The greater amount of time, and even the greater number of utterances produced by the upper middle class mothers, could have been just more of the same in terms of vocabulary, but it was not.

The foregoing findings are similar to patterns of class differences in maternal speech reported by other researchers--including differences found between lower class and middle class samples. The fact that the

present study found these differences using a working class sample suggests that the differences cannot be attributed to the oppressive effects of economic deprivation and environmental stress on human interaction. The working class families in the present study were not impoverished; their children were not deprived. By in large, these working class women had intact marriages, they were loving and capable mothers, their husbands were employed and supported the family. All that not withstanding, these mothers' verbal interactions with their children differed from the interactions of more educated mothers in many of the same ways lower class mothers have been found to differ.

Effects of interactive setting on class differences in child-directed speech

The effects and non-effects of setting observed in the present data further support the contention that the press of external factors does not explain the observed class differences in the mothers' child-directed speech. The difference in the discourse relations between maternal and child speech was consistent across all settings. Where the class differences in maternal speech were affected by setting, the differences were greater in the ostensibly goal-directed caretaking settings, and fewer during reading and toy play. Considering all the measures of maternal speech analyzed in the present study, the working class and upper middle class mothers looked most similar in the context of book reading, where the sole significant difference was in the rate of topic-continuing replies to child utterances. Of course, this similarity largely reflects the fact that all the mothers were reading the same books. Future analyses are planned to investigate the nature of the mothers'

extemporaneous speech alone. Toy play also reduced the class differences in maternal speech. During toy play the upper middle class mothers produced directives more frequently than in other settings and produced conversation-eliciting utterances less frequently, thus reducing the size of the class differences on these measures (although the difference in the frequency of behavior directives was still significant). This effect of the toy play setting may be specific to the particular sort of toys used. All of the toys were some variation on the theme of putting square pegs in square holes, round pegs in round holes, etc. In playing with their children with these toys, both groups of mothers showed high levels of behavior directives and acknowledgments of actions. The class differences in interaction during toy play might be very different with older children engaging in more fantasy/role playing types of play. In the present study mealtime was the setting which showed the greatest number of class differences in the mothers' child directed speech. It appears that mealtime is not necessarily a goal-directed setting, but rather is what the participants make of it. Given the instruction to "eat breakfast (or lunch) as you normally do," the upper middle class mothers seemed to make mealtime an opportunity for conversation; the working class mothers did not. This pattern of setting effects suggests that the class differences in maternal speech reflect some difference internal to the mothers rather than the influence of external factors.

Maternal child rearing beliefs and goals

One potential internal source of influence suggested in other literature is the mothers' child rearing goals and their beliefs and attitudes about the importance and even the appropriateness of conversing

with young children (Skinner, 1985; Schieffelin & Ochs, 1986). The possibility of social class differences in goals and attitudes was investigated in the present study in analyses of these mothers' responses in a brief interview conducted after all the video recording was concluded. The mothers were asked what they thought it was important for their children to be learning currently and what they hoped their children would be like as adults. They were also asked more specific questions about when they began talking to their children and how much they thought their children understood. Each interview was coded blind to the mothers' social class, and interrater reliabilities for the coding schemes presented here ranged from 87 to 100 percent agreement.

Mothers' responses to the question about current concerns were coded for the mention of the following themes: parent-oriented social skills, peer-oriented social skills, self-care, cognitive skills, motor skills, and self-actualization. Chi-square analyses revealed no association between social class and the frequency of mention of any of these themes. Responses to the question concerning long-term goals were coded for the mention of these following themes: social skills, academic abilities, occupational achievement, creativity/inquisitiveness, self-actualization, and other. There was one association with social class--upper middle class mothers more frequently mentioned being creative or inquisitive as a desirable characteristics ($X^2 = 8.88$, $p < .03$), although still only one third of these mothers mentioned this theme. There were no differences in the ages at which these mothers reported that they started talking to their children or in the age at which the mothers thought that their children started to understand. The working class mothers more frequently

estimated that their children currently understood "everything" that was said to them than did the upper middle class mothers, $X^2 = 3.71$, $p < .05$. In summary, the differences in the beliefs, attitudes, and goals the two groups of mothers described were few, and they seem not to provide an adequate explanation for the observed differences in their speech to their children.

Class differences in adult-directed speech

The results of analyses of the mothers' language use in their responses to the interview questions are more suggestive of an explanation for the observed differences in child-directed speech. There were significant differences between the upper middle class and working class mothers in the number of utterances they produced, in the number of different words they produced, and in MLU. In speech to the researcher, the upper middle class mothers talked more, produced longer utterances, and used a richer vocabulary. The similarity between these differences and the differences observed in child-directed speech suggests that the observed class differences in maternal speech to children reflect pervasive differences in the way these mothers use language, rather than any internal or external influences which are specific to their interactions with their children. That is, working class mothers and upper middle class mothers talk differently to their children not because of the settings in which they interact with their children and not because they have different attitudes towards children as conversational partners. Rather, these mothers talk differently to their children because they talk differently to everybody.

Some speculations on the consequences of the class differences in maternal speech

The children in this study are continuing to be followed in order to investigate the consequences for the children's language development of these class differences in the mothers' child-directed speech. The present data, in combination with the existing literature on environmental effects on language development offer some basis for speculating as to the outcome of this ongoing investigation. On the one hand, we should expect to see slower rates of language development in the working class children because some of the properties of speech which were less frequent in the working class mothers have been found to be positive predictors of rates of language development in other studies (Barnes, et al., 1983; Hoff-Ginsberg, 1986). We also might expect to see consequences of the observed class differences in maternal speech simply because the education literature tells us that children of less educated parents enter school with different verbal skills than children of more educated parents, although that does not directly implicate maternal speech as the source of the class differences in children's language.

On the other hand, there is evidence in the present data which suggests that early language development is not affected by the class differences in child-directed speech observed in these two groups of mothers. The two groups of children in the present study were almost identical in age and MLU. The similarity in MLU attests only to our success at applying our selection criteria. However, the similarity in age is a finding because age was not a selection criterion. This finding means that if there are consequences of the observed differences in

maternal speech, they occur later or in other aspects of these children's language development.

Two areas of research need investigation in order to reconcile the foregoing contradictory expectations. One is the old but unresolved question of which aspects of language development are innately governed and which are more sensitive to environmental influence. It may be that there were no group differences in the age at which children achieved the level of language use specified in the current selection criteria because development to this point is innately controlled and thus impervious to influences of the linguistic environment.

A second necessary area of research concerns the potentially multiple causes of social class differences in children's development. Other research which has found social class differences in children's language has typically involved very poor, lower class children. It could be that the language development of poverty children is stunted by their environment--not by their mothers' conversational style, but by other correlates of poverty such as poor nutrition and inadequate health care. The present sample of working class children and their mothers provides the opportunity to study the consequences of a less educated maternal conversational style in the absence of poverty and its other correlates.

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Table 1. Mean characteristics of maternal speech by social class and interactive setting

Characteristics of maternal speech	Interactive Setting: Mealtime UPMC	Mealtime WC	Dressing UPMC	Dressing WC	Reading UPMC	Reading WC	Toy Play UPMC	Toy Play WC
Amount								
Total number of utterances	260	181	170	103	334	337	266	238
Utterances per minute	13.8	11.5	22.4	16.2	21.7	23.6	16.0	13.0
Lexico-syntactic properties								
TTR	.46	.47	.45	.48	.47	.47	.41	.42
Number of Roots	190	148	149	105	251	264	168	155
MLU	3.63	3.51	3.60	3.46	3.85	3.95	3.66	3.49
Discourse properties								
Topic-continuing replies[1]	41.7	35.1	45.7	38.4	51.4	43.9	38.3	31.3
Functional properties[2]								
Conversation-eliciting utterances	39.6	32.3	36.7	32.0	31.4	29.0	27.0	25.2
Declaratives	19.5	15.8	19.6	16.3	29.1	30.5	19.1	19.2
Behavior directives	13.0	24.3	15.1	23.5	14.6	16.1	20.5	25.5
Responses to child speech	10.6	9.5	9.7	11.0	11.5	12.0	8.8	6.7
Acknowledgments of child actions	5.8	5.7	5.7	4.0	3.5	2.9	11.8	8.2
Corrections	1.6	2.8	1.7	3.4	1.3	2.1	2.9	4.8

[1]Frequency expressed as a percentage of child utterances

[2]Frequency expressed as a percentage of maternal utterances